

Subject: Reply Comments on FCC ET Docket No. 03-104 on the subject of Broadband over Power Lines (BPL)

Comments of:

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The following reply comments are hereby filed with the FCC in strong opposition to the authorization of Broadband over Power Line (BPL) via AC power utility lines.

My credentials and credibility on this matter:

I am a graduate of Xavier University with BS and Masters degrees in Communications.

For the past 38 years, I have been employed in the broadcast industry in various technical and managerial roles that have included the design of Medium Wave, Short Wave, AM, FM, TV, Digital TV and Digital Radio transmission facilities including carrier current broadcast transmission over power lines. I am presently Vice President of Strategic Business Development and Chief Technology Officer for Harris Corporation, Broadcast Communications Division.

In addition to my Harris duties, I am the Vice Chairman of the Advanced Television System Committee and serve on the FCC's Media Security and Recovery Committee.

I have previously provided technical consultation to the FCC on the ATSC - DTV standard.

I have been a licensed radio amateur operator for 42 years with the current extra class license call sign K8CJY.

My position on this matter:

I am strongly opposed to the authorization of BPL services because unlike other existing wired digital services which do not radiate RF energy, the proposed BPL service will radiate substantial amounts of RF energy which will cause severe interference to other new and existing "Over-the-Air" RF services.

Technical discussion supporting my position:

The technical reasons that BPL radiation cannot be sufficiently contained to just the power lines are rather easy to understand. The current wired broadband data services offered to end users operate at low power levels that are conducted via well balanced and/or shielded transmission lines which do not radiate the RF energy that they convey to the user premises. The Digital Subscriber Line (DSL) service offered over telephone lines is conveyed by a balanced, twisted pair, transmission line with carefully controlled electrical characteristics which prevent the conducted RF data services from being radiated into nearby receivers. Likewise, the Digital Over Cable System services are conveyed to the user premises via a completely shielded coaxial transmission line, which does not radiate RF energy.

In sharp contrast, the proposed BPL service uses existing AC power line infrastructure, which is not and never was intended to be an RF transmission line. The power line infrastructure was designed only to convey 60Hz, AC, power that is in a frequency range far below the RF spectrum used to convey digital data services. This power line infrastructure has completely uncontrolled electrical characteristics at RF frequencies. The physical placement and variable geometry of the power lines does not provide enough consistent balance and shielding to behave as a true RF transmission line. The

result is that a substantial amount of RF radiation into other “Over-the-Air” services is unavoidable from BPL.

The AC power line is an electrically noisy environment unlike the benign Digital Over Cable and DSL environments. As a result, the digital RF power level required by BPL service is much higher than that required by the other wired digital services, which further compounds the problem of BPL radiation into other services.

Trying to send RF information over a noisy, AC power line, with uncontrolled geometry, is a technologically bad idea because the RF level required is high and it is impossible to contain the RF radiation from power lines into “Over-the-Air” services.

The high amount of interference from BPL into “Over-the-Air” services is well documented by tests in Europe, Japan and within the United States. The American Radio Relay League (ARRL), which represents the amateur radio services in the United States, has done a well-documented interference study on the impact of BPL on the amateur radio services over the entire High Frequency and Low VHF spectrum. The results show an extremely high level of interference into all of the HF amateur radio services with the noise floor produced by BPL often being more than 50dB above the existing noise floor.

(Please see the separate comments filed by the ARRL on this docket)

The current analog broadcast service along with the recently implemented Digital Radio Mondiale (DRM) service at HF frequencies will also be severely impacted by interference from the proposed BPL.

The proposed BPL service radiates interference into the low VHF (Channels 2 – 6) spectrum likely causing interference to both analog and new digital TV services.

Summary:

- RF radiation interference from the proposed BPL into existing “Over-the-Air” services cannot be avoided due to the inherently poor RF characteristics of the power line infrastructure.
- The (“Access BPL”) over utility poles and medium voltage electric power lines is more likely to cause interference to “Over-the-Air” services than (“In-House BPL”) which is less likely to radiate.
- Other wired broadband services utilize wired infrastructure designed to contain the RF radiation and prevent interference to “Over-the-Air” services
- Approval of BPL will make much of the HF and Low VHF spectrum unusable for new and existing broadcast, amateur radio, and government communications in the vicinity of power lines carrying BPL.
- The AC power lines are not a good venue for the delivery of RF data services and there is ample capacity via more appropriate wired and wireless venues for the delivery of these broadband data services.

Respectfully,

Jay C. Adrick